

## **REMARKS**

Favorable reconsideration is respectfully requested.

The claims are 1 and 4-8. Claims 1 and 4-8 are currently amended. Claims 2, 3, 4, 5 and 9 are cancelled.

The “acidic pesticidal active ingredient” amendment to claims 1 and 8 is supported by original claims 4 and 5.

The “cationic surfactant” amendment to claims 1, 7 and 8 is supported by page 8, paragraph [0024] of the specification.

The “gelled” amendment to claims 1 and 8 is supported at page 13, paragraph [0047] of the specification.

The “basic substance” amendment to claims 1 and 8 is supported by page 8, paragraph [0025] of the specification.

The further surfactant amendments to claim 8 are supported by page 9, paragraph [0027], and the Examples of the specification.

Support for the granulation amendment in claim 8 is supported in original claim 9, now cancelled.

No new matter is added.

### **Claim Rejections – 35 USC § 112**

Claims 1-8 are rejected under 35 USC § 112, second paragraph, as indefinite. The claims are currently amended to fully respond to this rejection.

### **Claim Rejections – 35 USC § 103**

Claims 1-3 and 6 are rejected under 35 USC § 103(a) as being unpatentable over Bell et al. (US 6,087,306).

Claim 4 is rejected under 35 USC § 103(a) as being unpatentable over Bell et al. in view of Tocker (US 5,229,356).

Claim 5 is rejected under 35 USC § 103(a) as being unpatentable over Bell et al. in view of Yoshimura et al. (US 6,458,748).

Claims 7-9 are rejected under 35 USC § 103(a) as being unpatentable over Bell et al. Applicants respectfully traverse each of these rejections.

*1. The present invention*

The granular pesticide composition of the present invention comprises: (1) non-disintegrable pesticide granules containing an acidic pesticidal active ingredient, a cationic surfactant and a basic substance; and (2) a second pesticidal active ingredient. For the Examiner's information, Applicants here attach two diagrams which illustrate the present invention.

The non-disintegrable pesticide granules do not disintegrate in water within 30 minutes because the granules contain an acidic pesticidal active ingredient, a cationic surfactant capable of forming a gel in water, and a water-soluble basic substance.

That is, the acidic pesticidal active ingredient releases protons in water, and the protons form ion pairs with a cationic surface active agent which successively controls the dissolution of the acidic pesticidal active ingredient. In order to obtain a more stable dissolution rate, it is preferable that a cationic surfactant is gelled in water, i.e., the claimed cationic surfactant. The basic substance plays a role in controlling the pKa value of the acidic pesticidal active ingredient. In the present invention, the three components are closely associated with each other.

In this regard, the Examiner's attention is directed to Test Example 1 (test for dissolution in water) and Test Example 2 (biological effectiveness test) of the present specification.

Table 1 shows that very different results are obtained when a comparison is made between the compositions of Example 1 and Comparative Example 1. This is also true when comparing Example 2 and Comparative Example 2, and Example 5 and Comparative Example 3. Each composition in Examples 1, 2, and 5 contain the same active ingredient as Comparative Examples 1-3, respectively. The difference between the compositions of the Examples and the Comparative Examples is in whether a cationic surfactant is present or not.

In Test Example 1, for example, 95% of bensulfuron-methyl was dissolved one day after the granular pesticide composition of Comparative Example 1 was dropped in water. 53% of bensulfuron-methyl was dissolved on the day after the composition of Example 1 was dropped in water and then slowly released.

Furthermore, in Test Example 2, the composition of Comparative Example 1 exhibited inferior herbicidal effects (growth suppression). That is, 3.5, i.e., 60% on early water grass, along with chemical damage to paddy rice.

It is also noted that the granular pesticide composition of the present invention disintegrates on its own within 30 minutes after being placed in water, and then component (2), i.e., the second pesticidal active ingredient, is released in water. This is because the composition does not contain a cationic surfactant, but a nonionic surfactant or anionic surfactant. See paragraph [0026] of the specification.

2. *Bell et al.*

Applicants note that the Official Action contains two Rejections under 35 USC § 103(a) over Bell et al. Claims 1-3 and 6 are rejected over Bell et al. on page 4, section 6 of the Official Action. Claims 7-9 are rejected over Bell et al. on page 12, section 9, of the Official Action. Both rejections are here addressed.

Bell et al. does not disclose or suggest each and every element of the present claims.

The acidic pesticidal active ingredient of the present invention is defined as a sulfonylurea-based compound or a difluoromethanesulfonylanilide compound or a salt thereof which is not disclosed by Bell et al. The present invention is also not suggested by lamdacy-halothrin which is pyrethroid ester insecticide, pirimicarb, which is a dimethylcarbamate insecticide, or fluazifop-p-butyl which is an aryloxyphenoxypropionic herbicide, disclosed by Bell et al.

With regard to the cationic surfactant, Bell et al. only discloses cetyltrimethylammonium bromide as a suitable cationic wetting or dispersing agent. See column 6, lines 24-25. The presently claimed cationic surfactants are dialkydimethylammonium chlorides, which are capable of forming a gel in water. Moreover, in Bell et al., a non-ionic surfactant, viz. BRU 96, is used in Example 8 while no surfactant is used in Example 1. Accordingly, the disclosure of Bell et al. does not render obvious using the presently recited cationic surfactant.

Furthermore, with regard to a basic substance, Bell et al. only discloses acid clay as the water-insoluble filler. See col., 6, lines 8-11. The presently claimed basic substance is directed to those having a pH of 7.5 or higher in a 1 mass % aqueous solution or a 1 mass % aqueous

suspension. That is, the basic substance of the present invention must be soluble in water in order to control the pKa of the acidic pesticidal active ingredient. Accordingly, the disclosure of Bell et al. does not render obvious using the presently recited basic substance.

Consequently, one of ordinary skill in the art would not be motivated to add the claimed components, including a cationic surfactant capable of forming a gel and a water-soluble basic substance, to the composition of Bell et al.

Furthermore, the granular pesticide composition of the present invention is of a sustained-release type, as described in paragraph [0032] of the present specification, and is directly applied to a paddy field without dilution with water, as shown in paragraphs [0041], [0042], Examples and Test Examples.

On the other hand, the granule composition of Bell et al. is used in the form of a solution or dispersion and is applied as a spray to plants. See column 1, lines 40-46. The invention of Bell et al. was made with the object of reducing sludge from water-insoluble solid matter. See claim 1; column 1, lines 3-5; and column 3, lines 1-36. Bell et al. does not relate to a sustained-release composition.

For example, see “determination of initial sludge residue” in column 6, line 46 to column 7, line 21; and Example 1 in Bell et al. According to Tables 1 and 2, the initial sludge residues of granules A and B are in the range of 3.75%-8.08% and 1.16%-4.95%, respectively. Since the initial sludge residue is determined by leaving the granules in water for 10 minutes without agitation, (see column 6, lines 60-61), Example 1 shows that the granules of Bell et al. are disintegrated and dispersed about 10 minutes after being added to water.

Accordingly, the granular pesticide composition of the present invention has unobviously different properties and applications from the granular composition of Bell et al. Bell et al. does not disclose or suggest all of the features of the present claims.

### 3. *Bell et al. in view of Tocker*

The composition of Tocker et al. is particulate, (see column 4, line 30), which comprises: (1) one or more active ingredients including a sulfonylurea-based compound; (2) paraffin wax; (3) hydrocarbon polymer; and (4) a solid particulate filler. See claim 1. According to column 4, lines 47 and 48, the use of wax alone without the hydrocarbon

polymer does not produce a particulate. A cationic surfactant as recited in claim 1 of the present application is not disclosed or suggested by Tocker et al.

In contrast, as mentioned above, the non-disintegrable pesticide granule of the present invention comprises an acidic pesticidal active ingredient, a cationic surfactant capable of forming a gel, and a basic substance. The granular pesticide composition does not contain paraffin wax or hydrocarbon polymer as required ingredients.

Since the required ingredients are unobviously different between a particulate composition of Tocker et al. and a granular composition of the present invention, there is no motivation to use the sulfonylurea-based compound of Tocker et al. with a reasonable expectation of obtaining the granular pesticide composition of the present invention.

Accordingly, Bell et al. in view of Tocker et al. does not render obvious using a cationic surfactant capable of forming a gel, i.e., dialkyldimethylammonium chloride, together with an acidic pesticidal active ingredient and a water-soluble basic substance as recited in the present claim 1.

In addition, the particulate composition of Tocker et al. is directly applied to a paddy field without dilution with water. Therefore, one of ordinary skill in the art would not be motivated to combine teachings regarding a solution/dispersion for spray application as given by Bell et al., with teachings regarding a particulate for a non-dilution application as given by Tocker et al.

#### 4. *Bell et al. in view of Yoshimura*

Neither Bell et al. nor Yoshimura et al. disclose or suggest the use of a cationic surfactant capable of forming a gel, i.e., dialkyldimethylammonium chloride as presently recited. These references also did not design their compositions in consideration of the dissolution rate in water, unlike the present invention. Accordingly, even if a sulfonylanilide derivative of Yoshimura et al. is added to the composition of Bell et al., it would be impossible to arrive at, and would not suggest, the composition of the present invention.

No other further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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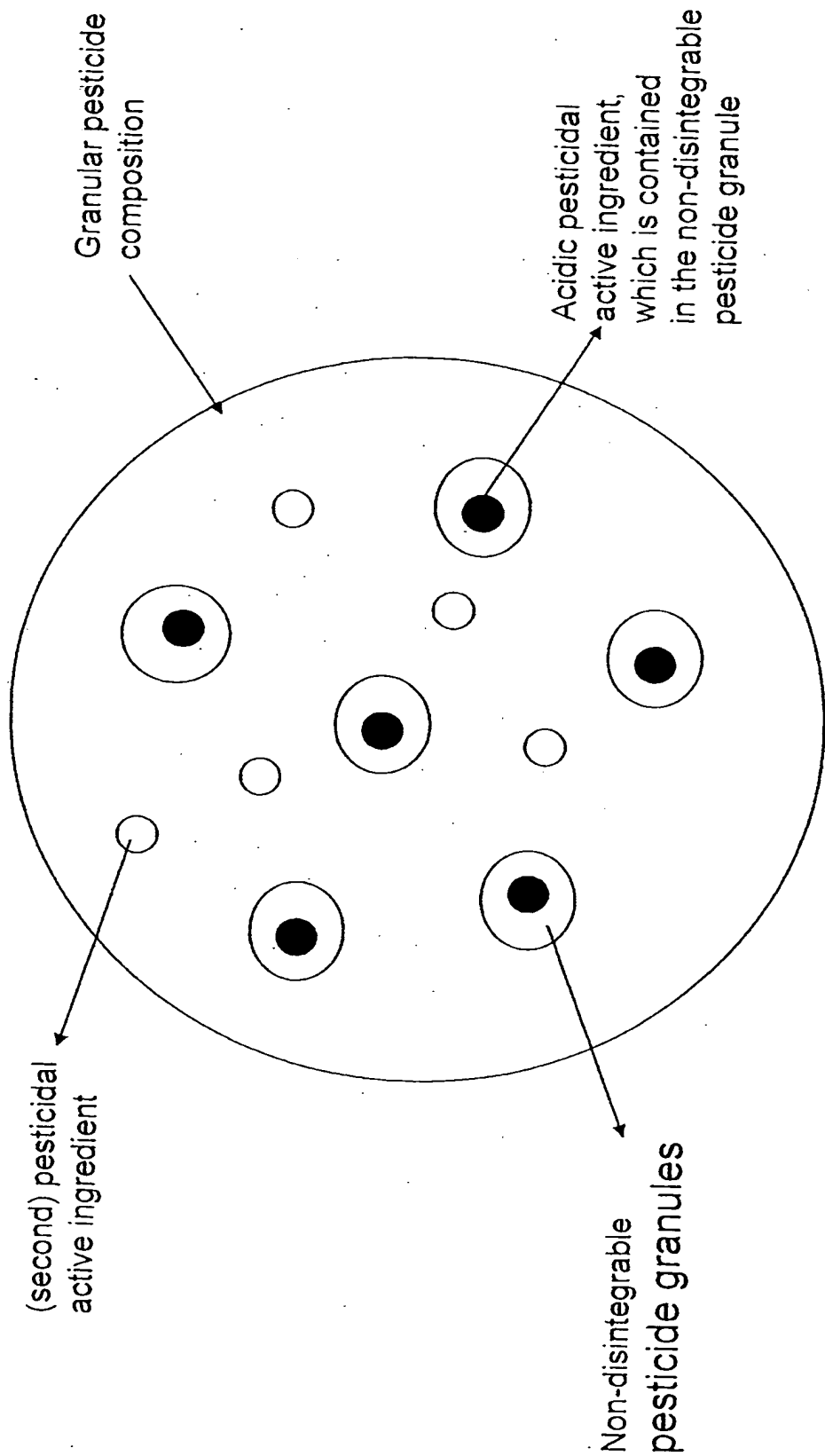
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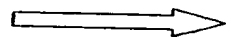
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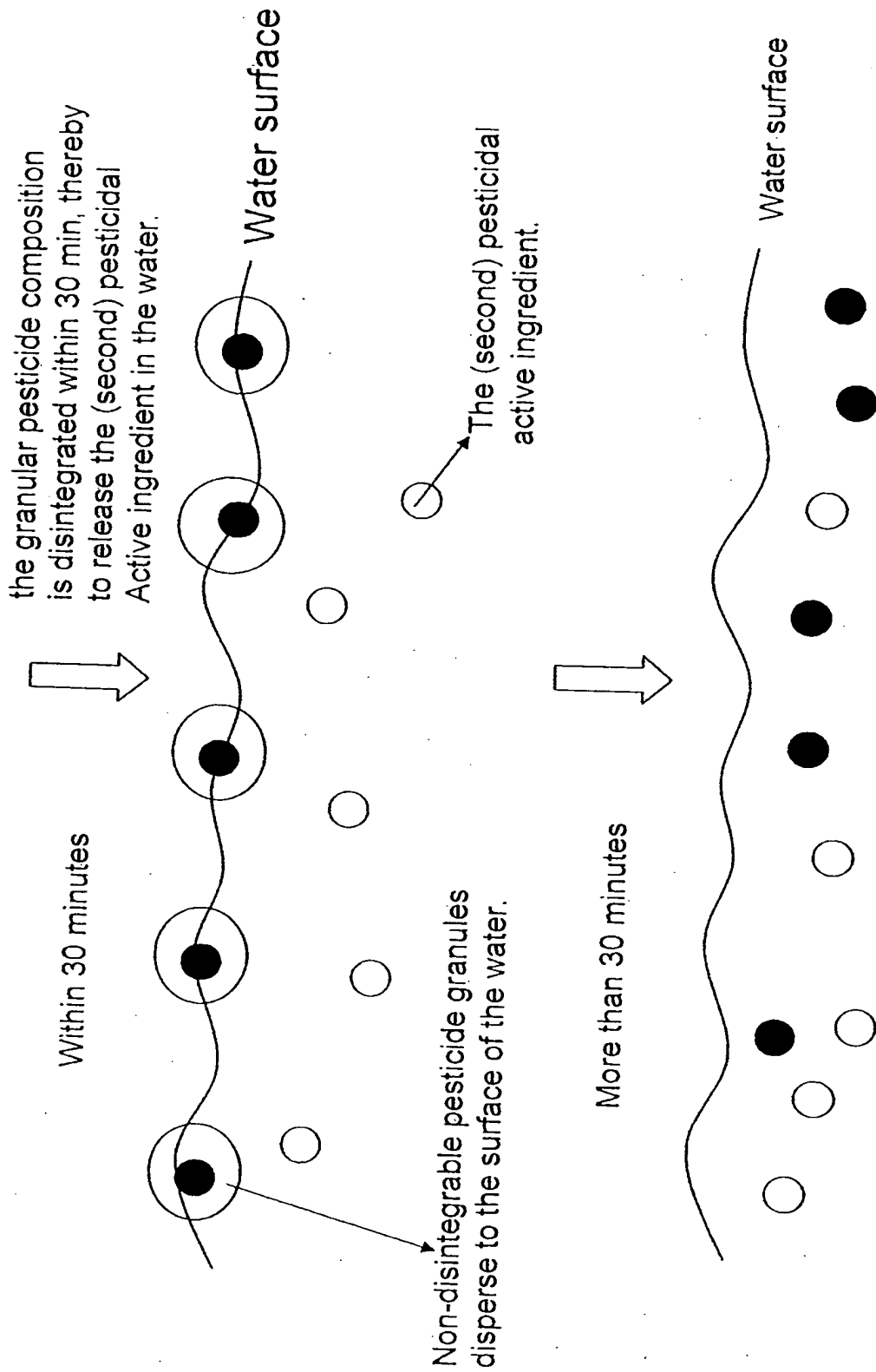
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# Mechanism for the inventive granular pesticide composition



When the granular pesticide composition is applied to a paddy field and soaked in water,





After more than 30 minutes, the non-disintegrable pesticide granules are disintegrated, thereby to release the acidic pesticidal active ingredient in the water.